

### **REMARKS/ARGUMENTS**

Applicants would like to thank the Examiner for the careful consideration given the present application.

The outstanding Office action dated June 26, 2008 is marked FINAL. Applicants respectfully request reconsideration of the finality of the outstanding Office action. On May 27, 2008, applicants filed substantive claim amendments along with an RCE. Because substantive claim amendments were filed with the RCE, applicants submit that the Office action should have been a non-final action.

Claims 1-8, 18 and 29 were rejected under 35 U.S.C. 103(a) as being unpatentable over FR 2828000 in view of Uozumi or Mohler. Claim 1 recites:

“the mobile magnetic portion (20) includes a magnet-based part (200) with reduced magnet weight, this part (200) having an overall volume, and a mass, the mass of the reduced magnet weight part is less than the mass of a part having the same overall volume and whose overall volume is totally occupied by the magnet.”

Uozumi teaches a print head. The object of Uozumi is to provide high speed printing (see column 2, lines 6-8: “a primary object of this invention is to provide a dot matrix print head which is capable of high speed printing...”). This object is accomplished through a weight-reducing groove 14 located in a region of an armature where the density of magnetic flux is relative small. This feature appears at least five times in Uozumi, including claims 1 and 3: see abstract (“the mass of the armature is reduced by providing a groove in the armature in the portion where the magnetic flux density is relatively low”); see column 2, lines 27-30 (“the armature is reduced in weight by having a portion thereof removed in the region where the

density of magnetic flux is relatively small"); see column 3, lines 61-68 ("because the groove 14 occupies the portion of the armature 4 where the magnetic flux density would be low even when the groove 14 were not present..., the magnetic flux passing through the armature 4 is not substantially affected by presence of this groove 14"); see claim 1 ("the armature having an open cavity therein in the region where the density of magnetic flux is relatively small"); and see claim 3 ("the armature is reduced in mass by having a portion thereof removed in the region with the density of magnetic flux is relatively small, said removed portion comprising a groove"). In the noted passages of Uozumi, the groove reduces the weight of the armature, but the groove is always associated with a region of low magnetic flux density. Reducing armature weight where the magnetic flux density is relatively small, and not in some other location, is an essential feature of Uozumi. Thus the magnetic flux passing through the armature is not significantly affected by the presence of the groove.

In FR 2828000 the magnetic flux density is uniform in the mobile magnetic portion, and there is no place where the magnetic flux density is relative weak or small (as taught by Uozumi). A person of ordinary skill in the art that desires to make a magnetic actuator having a reduced switching time would not combine the teaching of Uozumi with the teaching of FR 2828000, because he would be unable to locate a low magnetic flux density region in the FR 2828000 mobile magnetic portion in which to place a weight-reducing groove (as taught by Uozumi). The general teaching of Uozumi, i.e., reducing the weight of an armature in a portion where the magnetic flux density is relatively low, cannot be applied to the mobile magnetic portion of FR 2828000. Consequently, the person of ordinary skill in the art would not combine the teaching of FR2828000 and Uozumi to arrive at the claimed invention.

Claim 1 recites, "the mass of the reduced magnet weight part is less than the mass of a part having the same overall volume and whose overall volume is totally occupied by the magnet." In the subject matter of claim 1, the mass of a magnet-based part is reduced while maintaining volume. As compared to a part having the same overall volume but totally occupied by the magnet, the reduced magnet weight part has less mass. Contrary to claim 1, Mohler reduces the weight of its armature 16' by *reducing* volume. Therefore, applicants submit that Mohler does not teach that the mass of a reduced magnet weight part is less than the mass of a part having the same overall volume and whose overall volume is totally occupied by the magnet.

Further, Mohler removes a portion on the side opposite to an attraction area 20. The removed portion is located in a place of low armature flux when compared with a central core 18 of the armature. Mohler teaches that the armature is of a reduced thickness of permeable material in all regions except the immediate vicinity of the air gaps so as to reduce its inertia but maintain the air gap generated attractive force (2:63-67). In FR 2828000 the magnetic flux density is uniform in the mobile magnetic portion, and there is no place where the magnetic flux density is relative low. A person of ordinary skill in the art that desires to make a magnetic actuator having a reduced switching time would not combine the teaching of Mohler with the teaching of FR 2828000, because he would be unable to locate a low magnetic flux density region in the FR 2828000 mobile magnetic portion in which to reduce weight.

For the reasons discussed above, applicants submit that claim 1 is allowable over the cited references. Claims 2-8 and 18 depend from claim 1 and, therefore, are also allowable over the cited combinations of references. The arguments provided above with respect to claim 1 are also applicable to claim 29.

Claim 19 was rejected under 35 U.S.C. 103(a) as being unpatentable over FR 2828000 in view of Uozumi or Mohler and further in view of Uetsuhara. Claim 19 depends from claim 1 and, therefore, is allowable for the reasons discussed above with respect to claim 1.

In light of the foregoing, it is respectfully submitted that the present application is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. BRV-39291.

Respectfully submitted,  
PEARNE & GORDON, LLP

By:   
Brad C. Spencer – Reg. No. 57,076

1801 East 9<sup>th</sup> Street  
Suite 1200  
Cleveland, Ohio 44114-3108  
(216) 579-1700

Date: November 18, 2008